

Results: Eighty three participants completed the intervention (HP-D = 34, HP-S = 26, TP = 23). Strength increased in all treatment groups, but the increase was significantly less in HP-S compared with HP-D and TP ($p = 0.006$; HP-S, $63.0 \pm 23.8\%$; HP-D, $92.1 \pm 40.8\%$; TP, $92.3 \pm 35.4\%$). There was no difference between HP-D and TP ($p = 0.99$). Lean body mass increased and fat mass decreased ($p = 0.006$), with no differential effect between any treatments ($p = 0.06$).

Conclusions: Increased intake of soy protein attenuated gains in muscle strength compared with increased intake of dairy protein or a typical protein intake.

Funding source(s): Dairy Health & Nutrition Consortium.

Concurrent session 5: plant foods

THE IMPACT OF FRUIT FLAVONOIDS FROM CHERRIES ON MEMORY AND COGNITION IN OLDER ADULTS WITH MILD TO MODERATE DEMENTIA

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Background/Aims: A high consumption of dietary flavonoids, including anthocyanins, show promising results for improving cognitive outcomes, and may be beneficial for the prevention and treatment of dementia. We aimed to assess whether further cognitive decline could be delayed or prevented in dementia patients through daily intake of anthocyanin-rich cherry juice. Secondary outcomes included blood pressure and anti-inflammatory effects.

Methods: A 12-week randomised controlled trial assessed multiple cognitive outcomes in older adults ($n = 49$) with mild to moderate Alzheimer's type dementia (70+ years) after consumption of 200 mL/day of either cherry juice or a control juice with negligible anthocyanin content. Repeated measures ANCOVA were performed. Blood pressure and inflammatory markers [C-reactive protein (CRP), IL-6] were measured at 6 and 12 weeks.

Results: Cognitive improvements were seen in tasks relating to verbal fluency ($p = 0.014$), short term memory ($p = 0.014$) and long term memory ($p < 0.001$) in the cherry juice group. There was a trend for systolic ($p = 0.038$) and diastolic ($p = 0.160$) blood pressure reduction in the intervention group. Markers of inflammation (CRP and IL-6) were not altered in either group.

Conclusions: For older adults with dementia, the inclusion of an anthocyanin-rich beverage may be a practical way to improve their total flavonoid consumption, with potential to improve specific cognitive outcomes.

Funding source(s): Illawarra Health and Medical Research Institute.

CELLULOSE CAN ATTENUATE GLUCOSE RELEASE FROM STARCHY FOODS

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Background/Aims: The present study investigates the mechanism and kinetics of insoluble fibres in attenuating the hydrolysis of starch by α -amylase.

Methods: *In vitro* hydrolysis and Michaelis-Menten kinetic parameters for inhibition of α -amylase activity were determined using maize starch as a substrate in the presence of various concentrations of cellulose. Confocal microscopic techniques were used to visualise the amylase bound to cellulose.

Results: We, for the first time, report on potential inhibition of α -amylase activity by cellulose based on *in vitro* experiments. The presence of cellulose in the hydrolysing medium hindered the initial velocity of starch hydrolysis in a concentration dependent manner. Amylase adsorption to cellulose was reversible, attaining equilibrium within 30 minutes of incubation, and was faster at 37 °C compared to 20 and 0 °C. The adsorption

was almost unchanged in presence of maltose (2.5–20 mM) but was hindered in the presence of excess protein suggesting non-specific adsorption of α -amylase to cellulose. Kinetic analyses of α -amylase hydrolysing maize starch in presence of cellulose as inhibitor using Dixon and Direct Linear plots showed that the inhibition is of a mixed type. The dissociation constant (K_{ic}) of the EI complex was found to be ca. 3 mg/mL.

Conclusions: The inhibition of α -amylase activity suggests that cellulose in diet can potentially attenuate starch hydrolysis.

Funding source(s): ARC, University of Queensland.

ASSOCIATIONS BETWEEN FRUIT AND VEGETABLE INTAKE AND QUALITY OF LIFE

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Background/Aims: Fruit and vegetable consumption plays an important role in promoting health. Good nutrition and functional health are essential for healthy ageing. This study investigates the relationship between fruit and vegetable intake and quality of life (QoL).

Methods: Men and women aged 55–66 years were recruited into the Wellbeing, Eating and Exercise for a Long Life study from the Australian Electoral Roll ($n = 2384$, 46.7% males). QoL using the RAND-36 item health survey, fruit and vegetable consumption and socio-demographic data were collected from postal surveys in 2010 and 2012. Associations between fruit and vegetable intake (serves/day) and variety in 2010 and QoL in 2012, were investigated using logistic regression models, stratified by sex and adjusted for potential confounders (socio-demographic factors, health and BMI).

Results: Fruit (men: $p = 0.051$; women: $p = 0.004$) and vegetable (men: $p = 0.042$; women: $p = 0.010$) intake were associated with general health perception for both men and women. Vegetable variety was associated with general health perception ($p = 0.033$), vitality ($p = 0.036$) and social functioning ($p = 0.042$) for men, but not women. Fruit variety was associated with mental component summary score for men ($p = 0.029$) and women ($p = 0.057$), and the vitality subscale (men: $p = 0.006$, women: $p = 0.009$).

Conclusions: Fruit and vegetable intake and fruit variety were associated with some aspects of QoL among older adults. Further research is needed to determine the mechanisms driving these influences.

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REGULAR CONSUMPTION OF LEGUMES REDUCES THE RISK OF CARDIOVASCULAR MORTALITY

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Background/Aims: Intervention studies have demonstrated beneficial effects of legume consumption on markers of chronic disease. The effect of regular legume consumption in Australian populations is not well understood. This study aimed to investigate the relationship between legume consumption and cardiovascular mortality among middle-aged adults.

Methods: Data from 40,625 participants from the Melbourne Collaborative Cohort Study were analysed. Baseline data were collected between 1990 and 1994; mortality data were matched up to December 2009. Participants completed a 121-item food frequency questionnaire with two items about legume consumption. Legume consumption was divided into three categories related to frequency of legumes consumed per week (never, 0 to 2, ≥ 2). Multivariate regression models were used to calculate cardiovascular mortality hazard risk ratios. Models were adjusted for age, and other lifestyle variables.

Results: During the 15.9 years of follow up, 5489 people died, with the primary cause of death as CVD ($n = 1365$). After multivariate adjustment, participants who consumed legumes two or more times per week had significantly reduced risk of cardiovascular mortality (20%) when compared to those who never ate legumes (HR 0.80; 95%CI: 0.66, 0.97). A significant trend for reduced risk of cardiovascular mortality and increasing category of weekly legume consumption was also found ($p_{\text{trend}} = 0.03$).